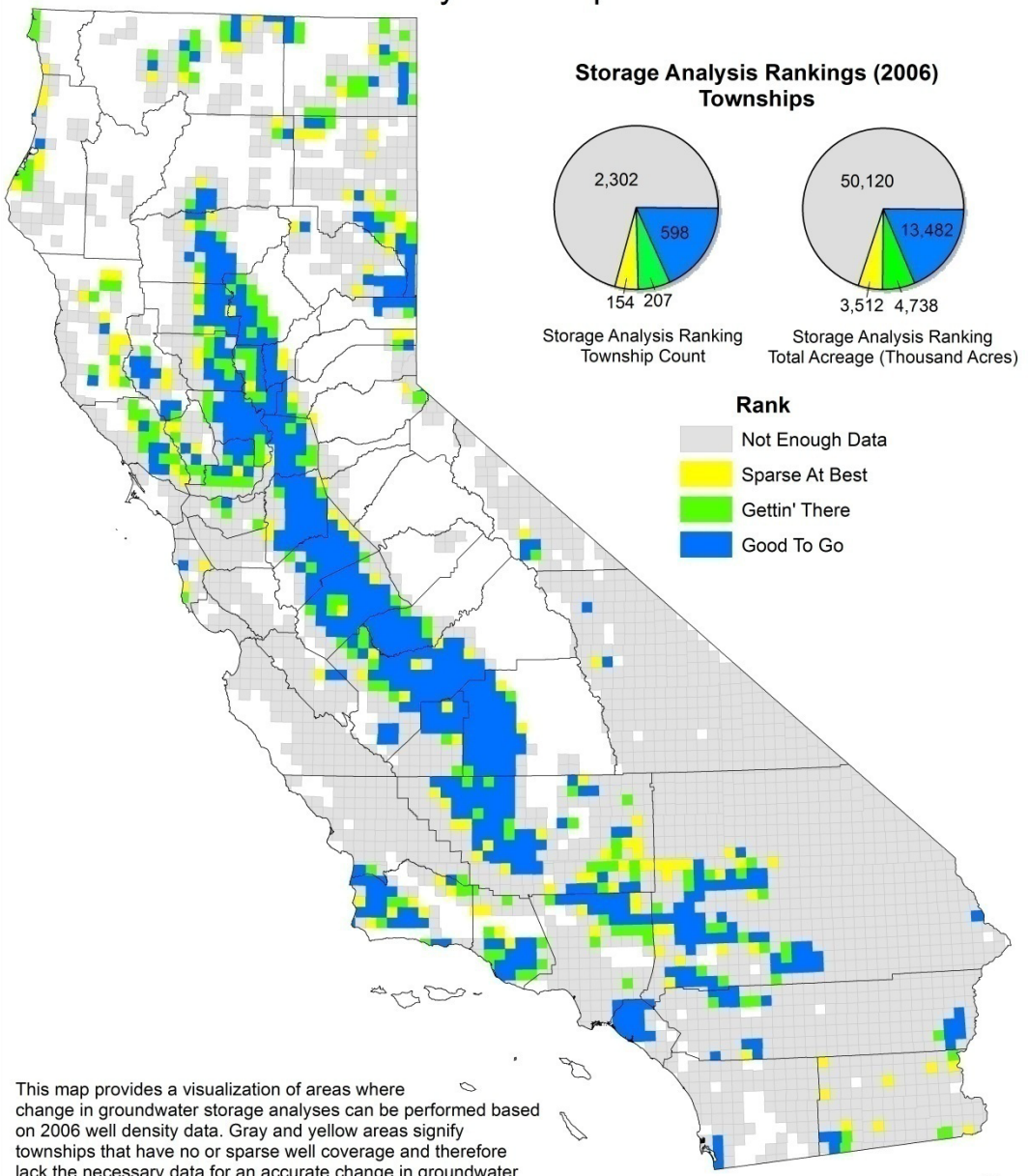
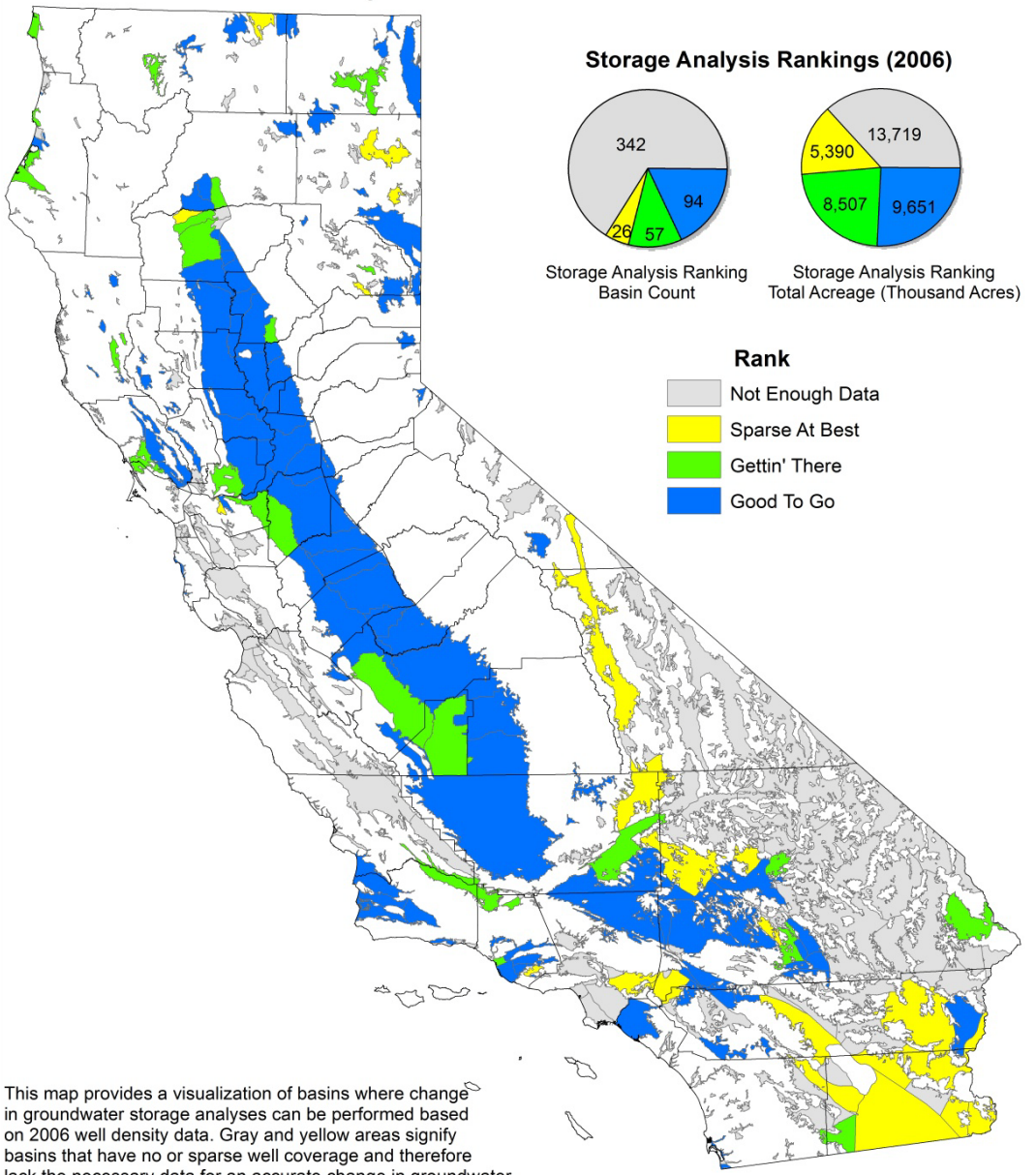
Assessment for Change in Groundwater Storage Analyses (2006) By Township

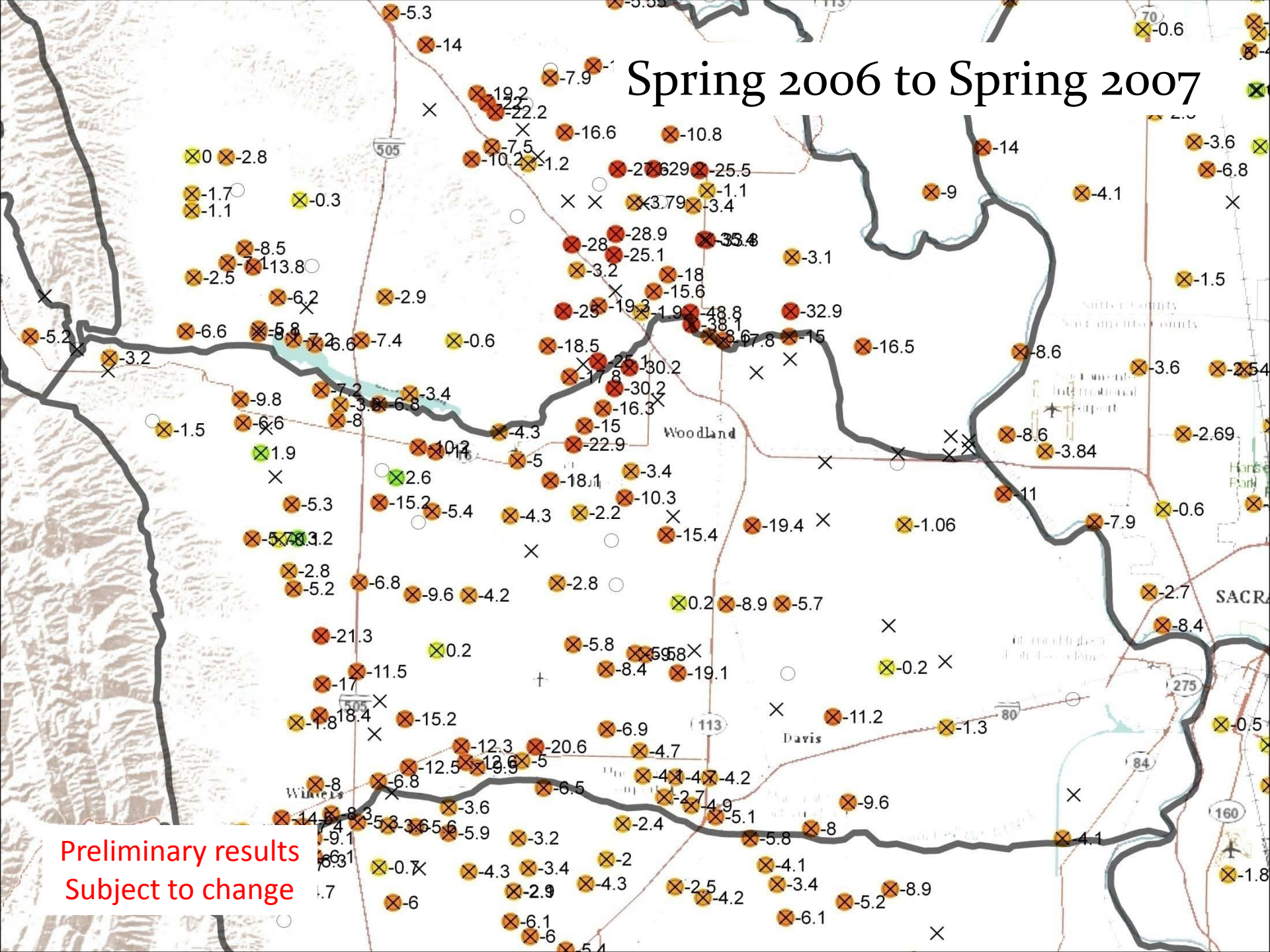


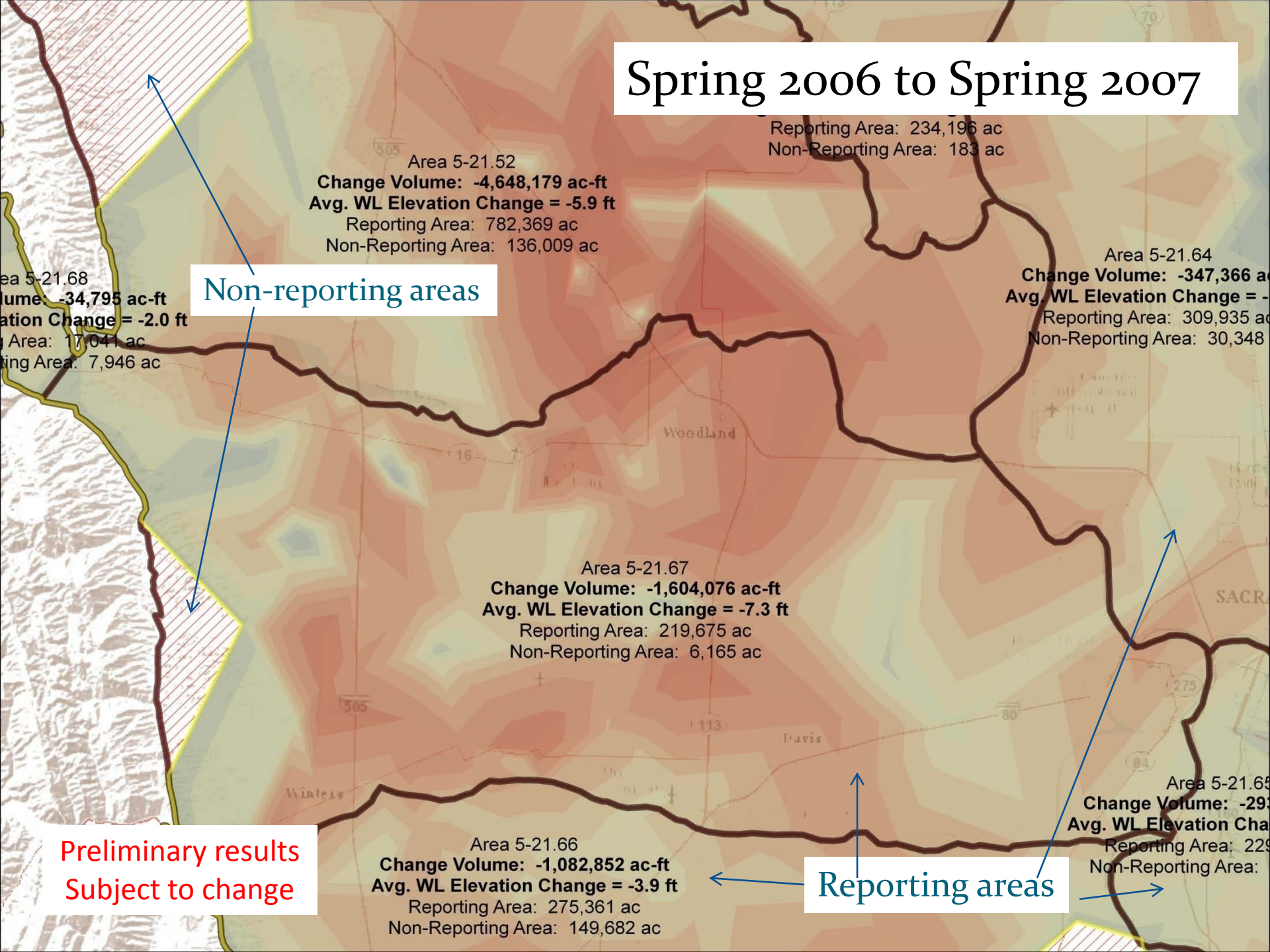
This map provides a visualization of areas where change in groundwater storage analyses can be performed based on 2006 well density data. Gray and yellow areas signify townships that have no or sparse well coverage and therefore lack the necessary data for an accurate change in groundwater storage analysis. Green and blue areas identify townships with adequate to sufficient well coverage for an accurate assessment of change in groundwater storage.

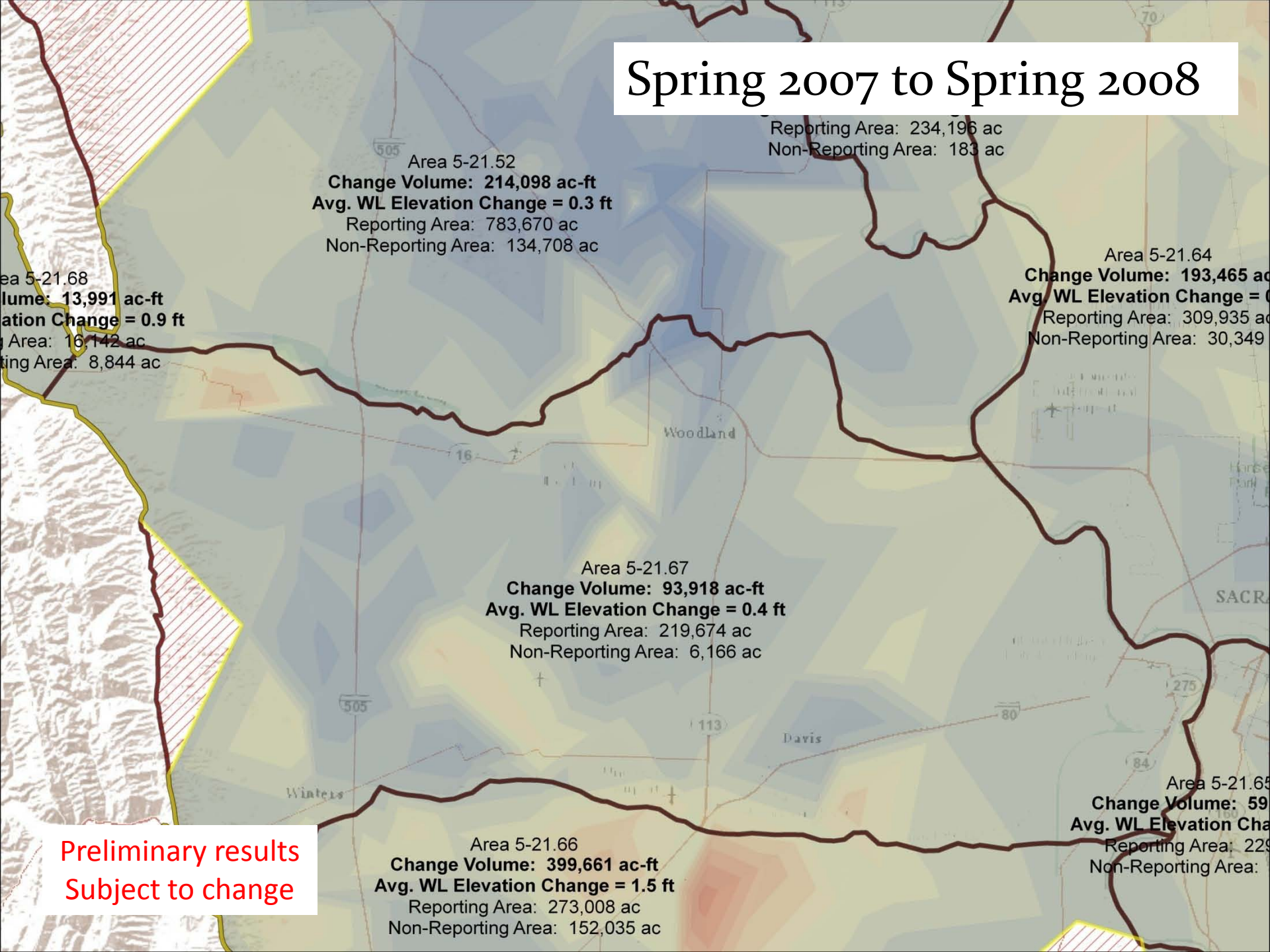
Assessment for Change in Groundwater Storage Analyses (2006) By Groundwater Basin

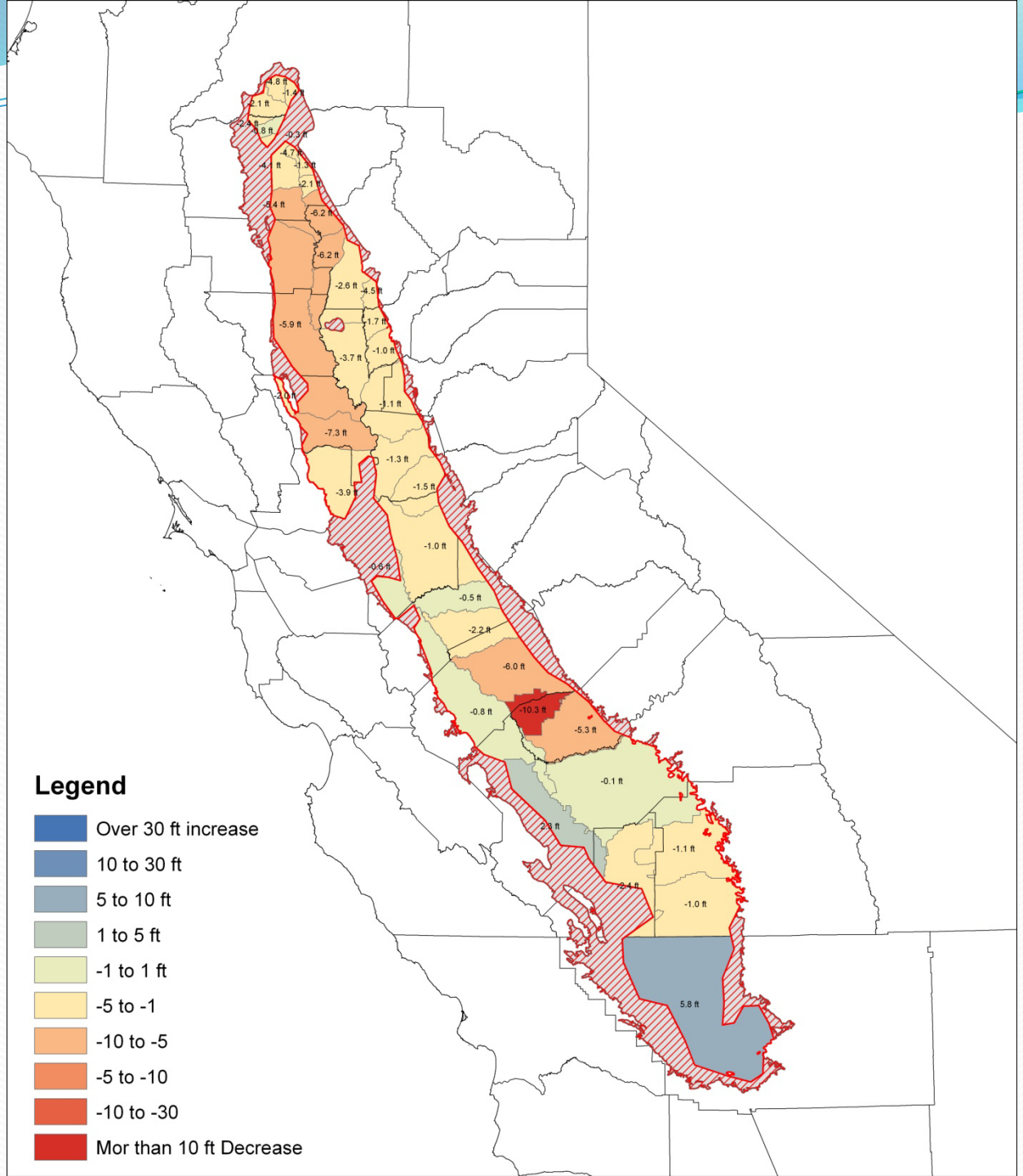


This map provides a visualization of basins where change in groundwater storage analyses can be performed based on 2006 well density data. Gray and yellow areas signify basins that have no or sparse well coverage and therefore lack the necessary data for an accurate change in groundwater storage analysis. Green and blue areas identify basins with adequate to sufficient well coverage and possess enough data for an accurate change in groundwater storage analysis.

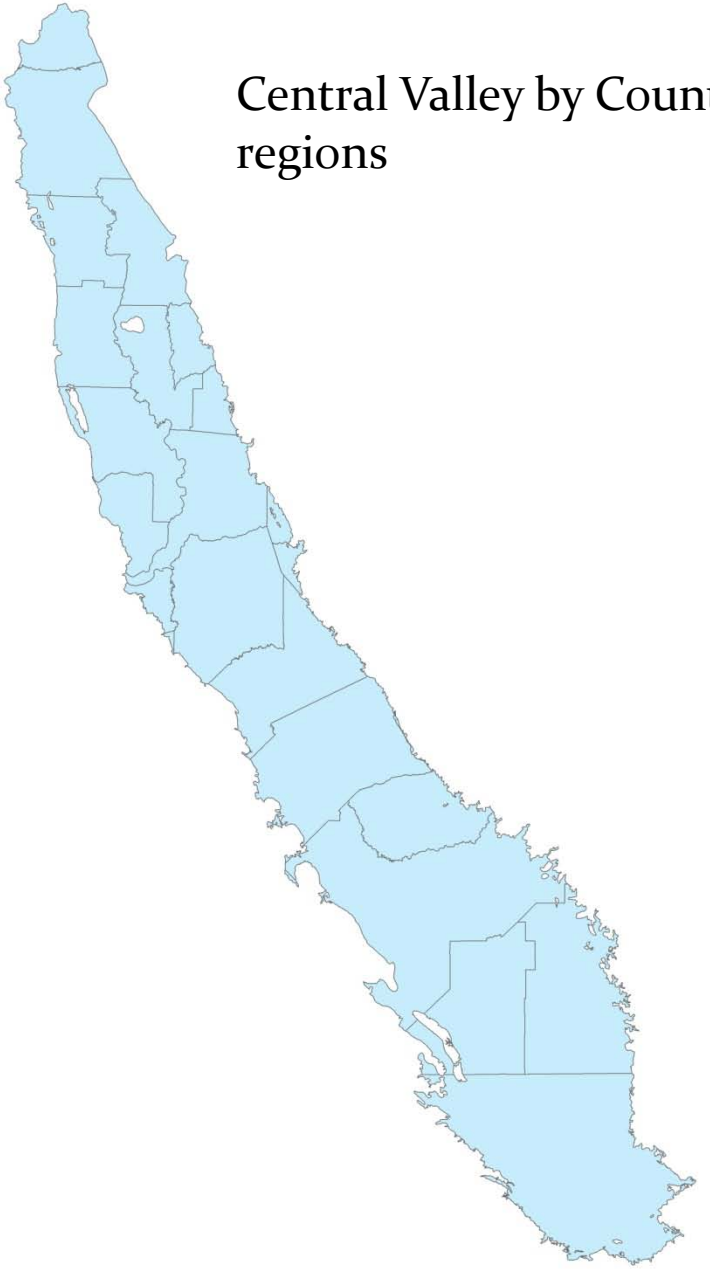

Spring 2006 to Spring 2007
Preliminary results
Subject to change
Woodland
Davis
Winters
SACR
505
113
80
84
275
160
70

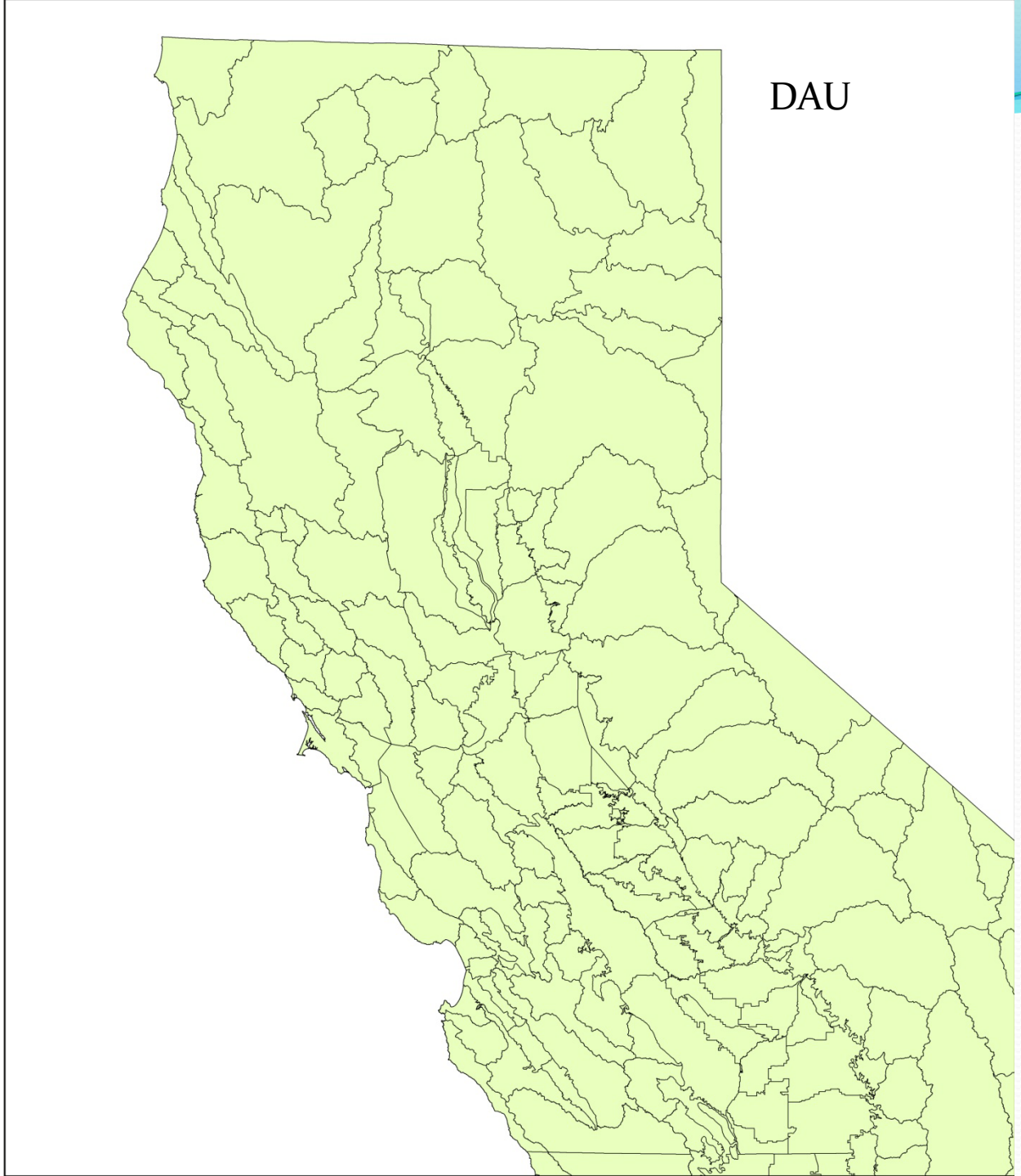

Spring 2006 to Spring 2007
Reporting Area: 234,196 ac
Non-Reporting Area: 183 ac
Area 5-21.52
Change Volume: -4,648,179 ac-ft
Avg. WL Elevation Change = -5.9 ft
Reporting Area: 782,369 ac
Non-Reporting Area: 136,009 ac
Non-reporting areas
Area 5-21.64
Change Volume: -347,366 ac
Avg. WL Elevation Change = -
Reporting Area: 309,935 ac
Non-Reporting Area: 30,348
Area 5-21.67
Change Volume: -1,604,076 ac-ft
Avg. WL Elevation Change = -7.3 ft
Reporting Area: 219,675 ac
Non-Reporting Area: 6,165 ac
Area 5-21.66
Change Volume: -1,082,852 ac-ft
Avg. WL Elevation Change = -3.9 ft
Reporting Area: 275,361 ac
Non-Reporting Area: 149,682 ac
Reporting areas
Preliminary results
Subject to change
Woodland
Davis
Winters

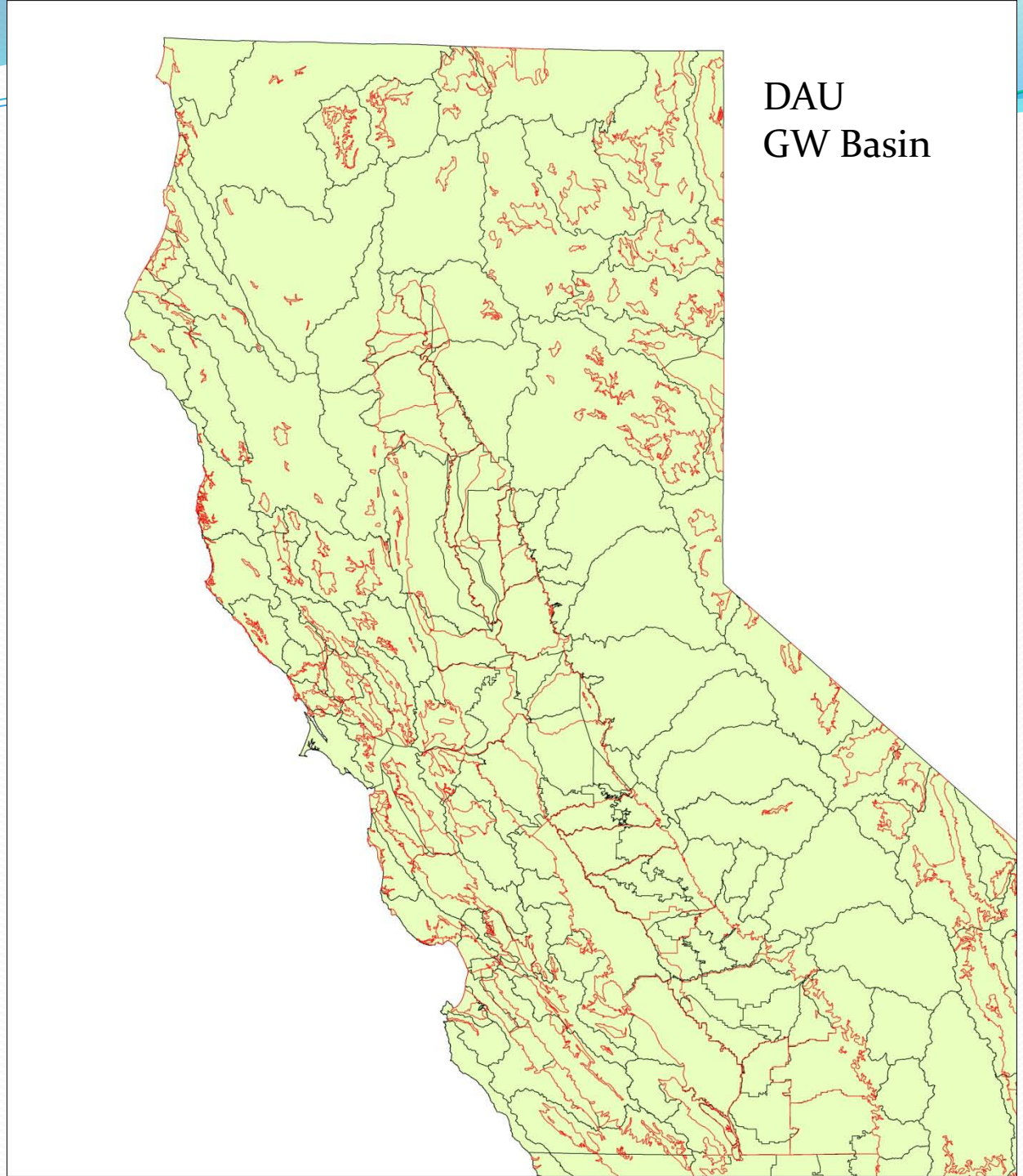

Spring 2007 to Spring 2008
Reporting Area: 234,196 ac
Non-Reporting Area: 183 ac
Area 5-21.52
Change Volume: 214,098 ac-ft
Avg. WL Elevation Change = 0.3 ft
Reporting Area: 783,670 ac
Non-Reporting Area: 134,708 ac
ea 5-21.68
lume: 13,991 ac-ft
ation Change = 0.9 ft
Area: 16,142 ac
ting Area: 8,844 ac
Area 5-21.64
Change Volume: 193,465 ac
Avg. WL Elevation Change =
Reporting Area: 309,935 ac
Non-Reporting Area: 30,349
Woodland
Area 5-21.67
Change Volume: 93,918 ac-ft
Avg. WL Elevation Change = 0.4 ft
Reporting Area: 219,674 ac
Non-Reporting Area: 6,166 ac
Davis
Winters
Area 5-21.65
Change Volume: 59
Avg. WL Elevation Cha
Reporting Area: 229
Non-Reporting Area:
Area 5-21.66
Change Volume: 399,661 ac-ft
Avg. WL Elevation Change = 1.5 ft
Reporting Area: 273,008 ac
Non-Reporting Area: 152,035 ac
Preliminary results
Subject to change

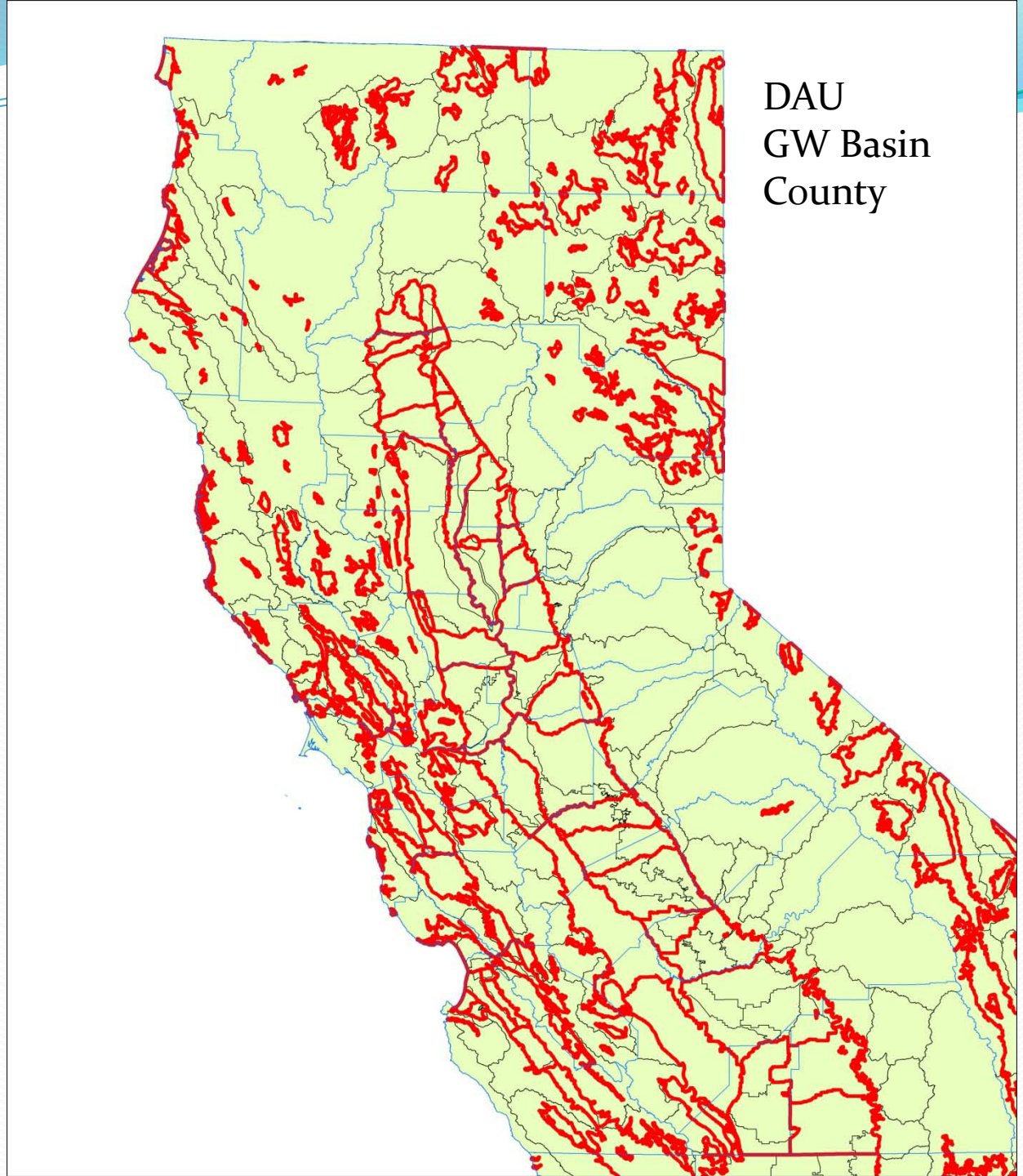

Legend
Over 30 ft increase
10 to 30 ft
5 to 10 ft
1 to 5 ft
-1 to 1 ft
-5 to -1
-10 to -5
-5 to -10
-10 to -30
Mor than 10 ft Decrease
-4.8 ft
-1.4 ft
-2.1 ft
-0.3 ft
-4.7 ft
-1.3 ft
-2.1 ft
-5.4 ft
-6.2 ft
-6.2 ft
-2.6 ft
-4.5 ft
-5.9 ft
-1.7 ft
-1.0 ft
-3.7 ft
-1.1 ft
-7.3 ft
-1.3 ft
-1.5 ft
-3.9 ft
-1.0 ft
-0.6 ft
-0.5 ft
-2.2 ft
-6.0 ft
-10.3 ft
-0.8 ft
-5.3 ft
-0.1 ft
-1.1 ft
-1.0 ft
5.8 ft

Central Valley by County regions

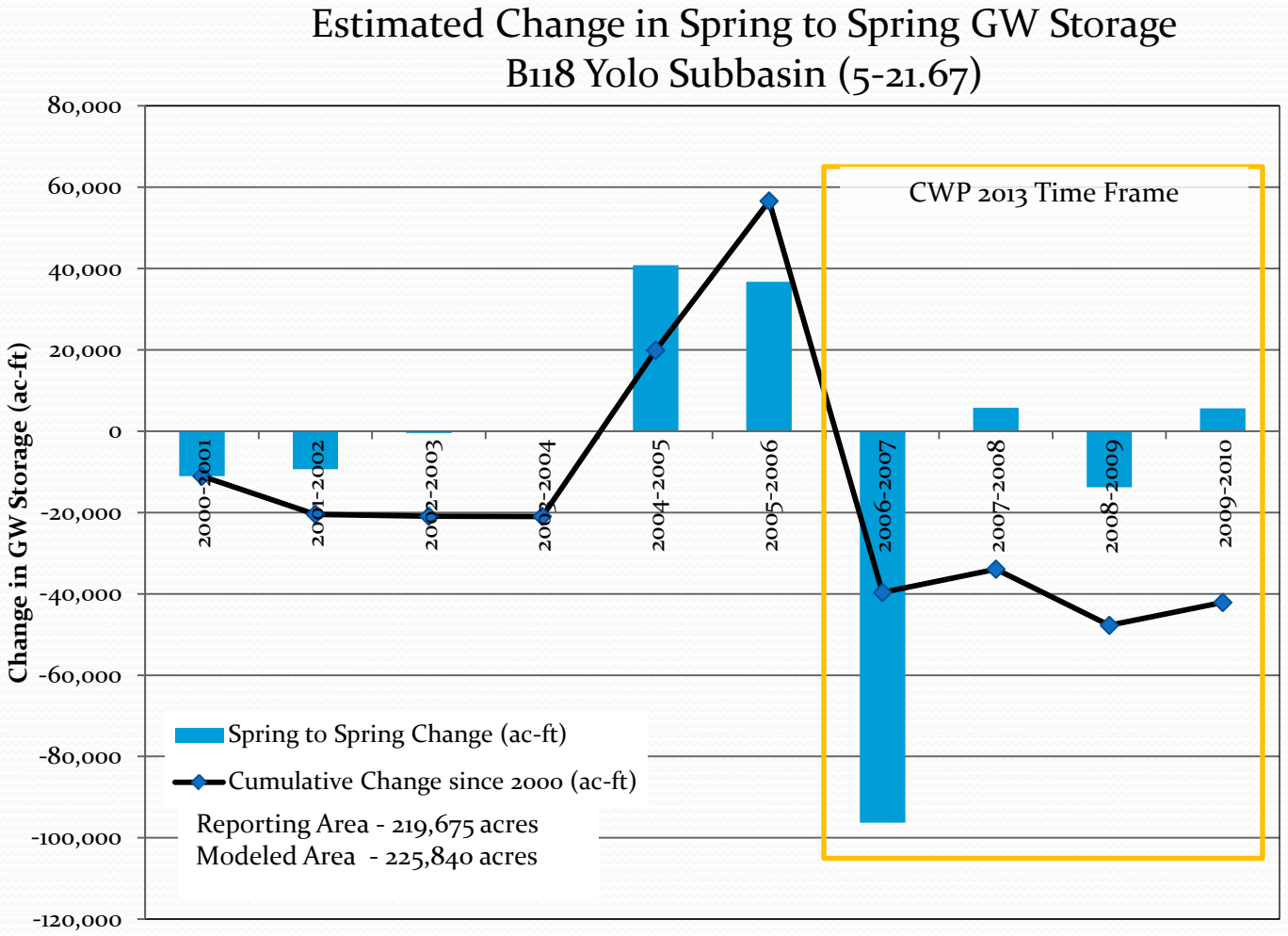



DAU


DAU
GW Basin

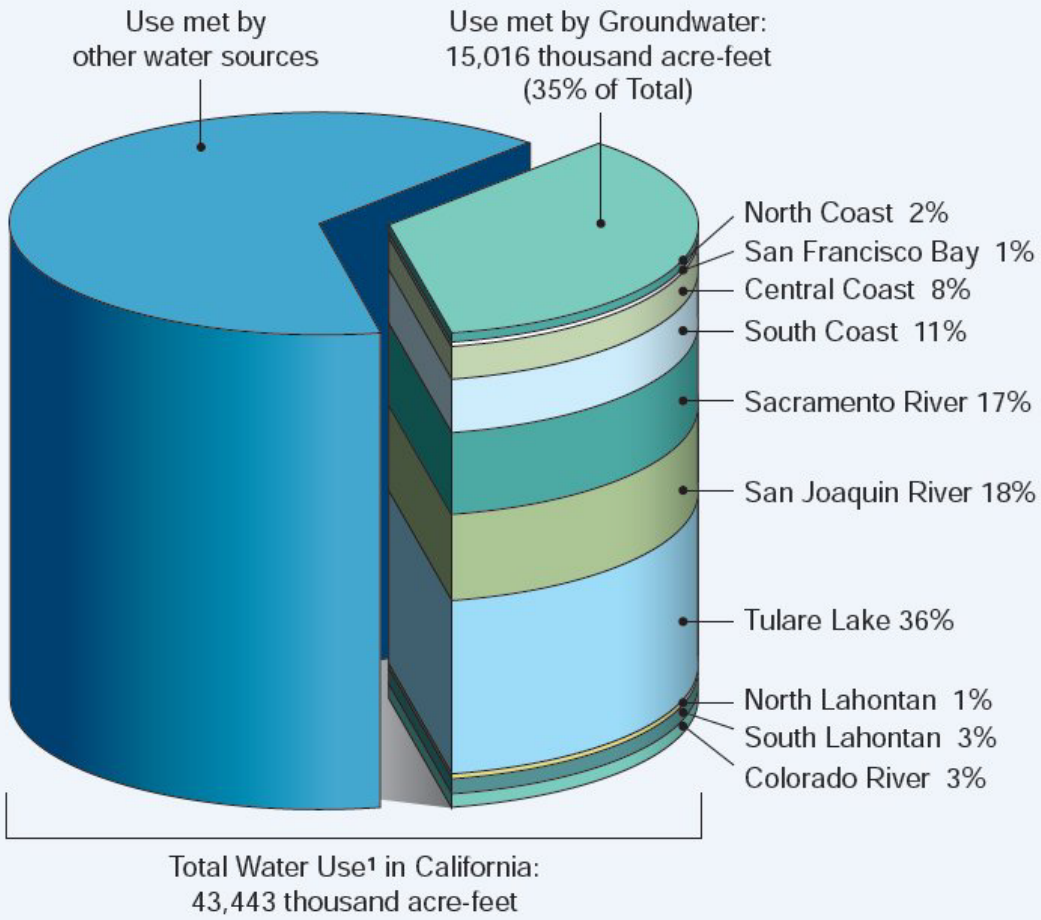

DAU
GW Basin
County

Analysis Results Summary



Analysis Results Summary

Figure A Percentage of groundwater extraction in California, statewide and by hydrologic region (1998-2005 average annual data)



1. *Total Water Use is defined as the sum of water uses for agricultural, urban, and managed wetlands.*

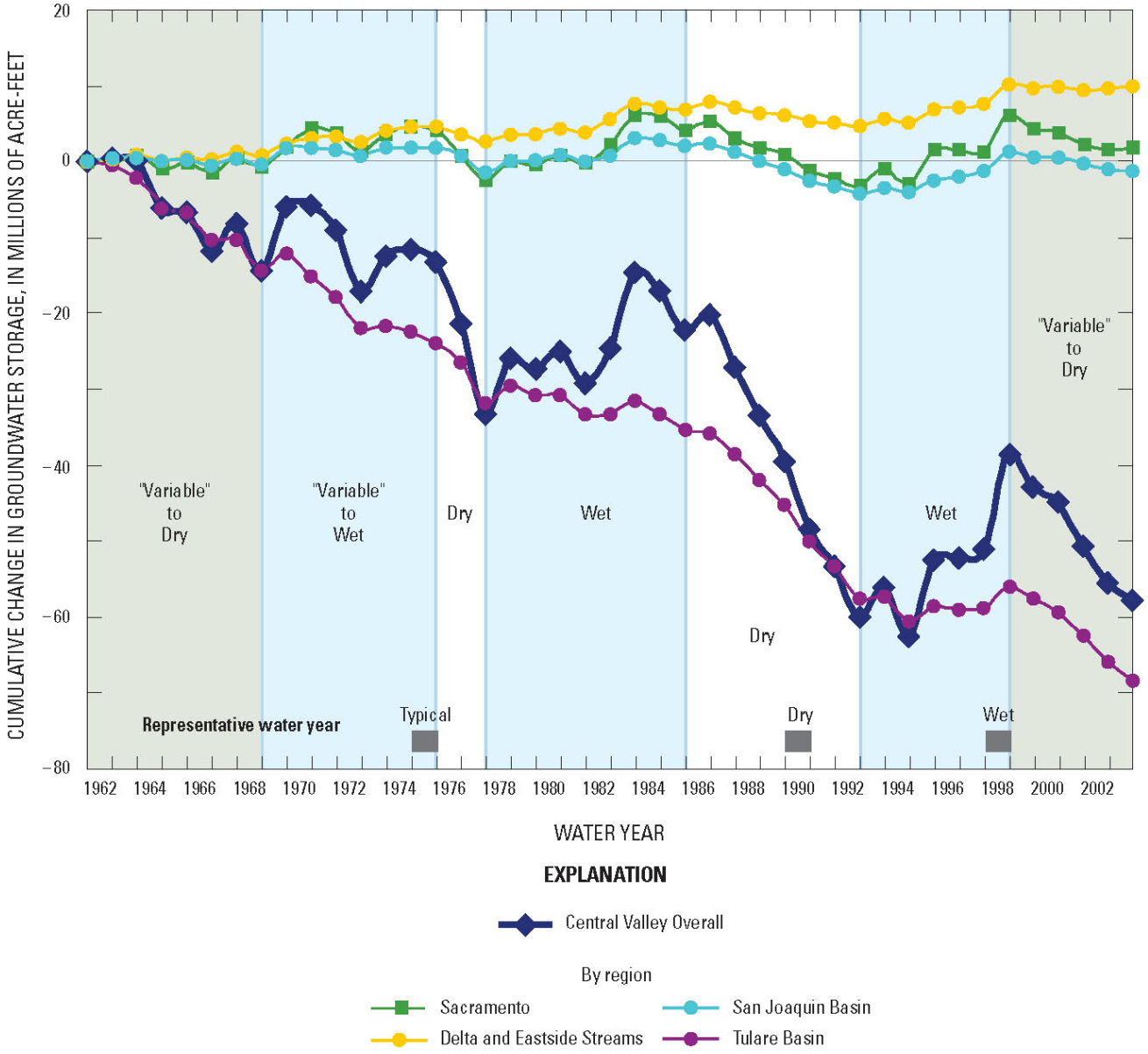


Figure B9. Simulated cumulative annual changes in aquifer-system storage between water years 1962 and 2003 for the Central Valley, California.

Change in Storage Examples

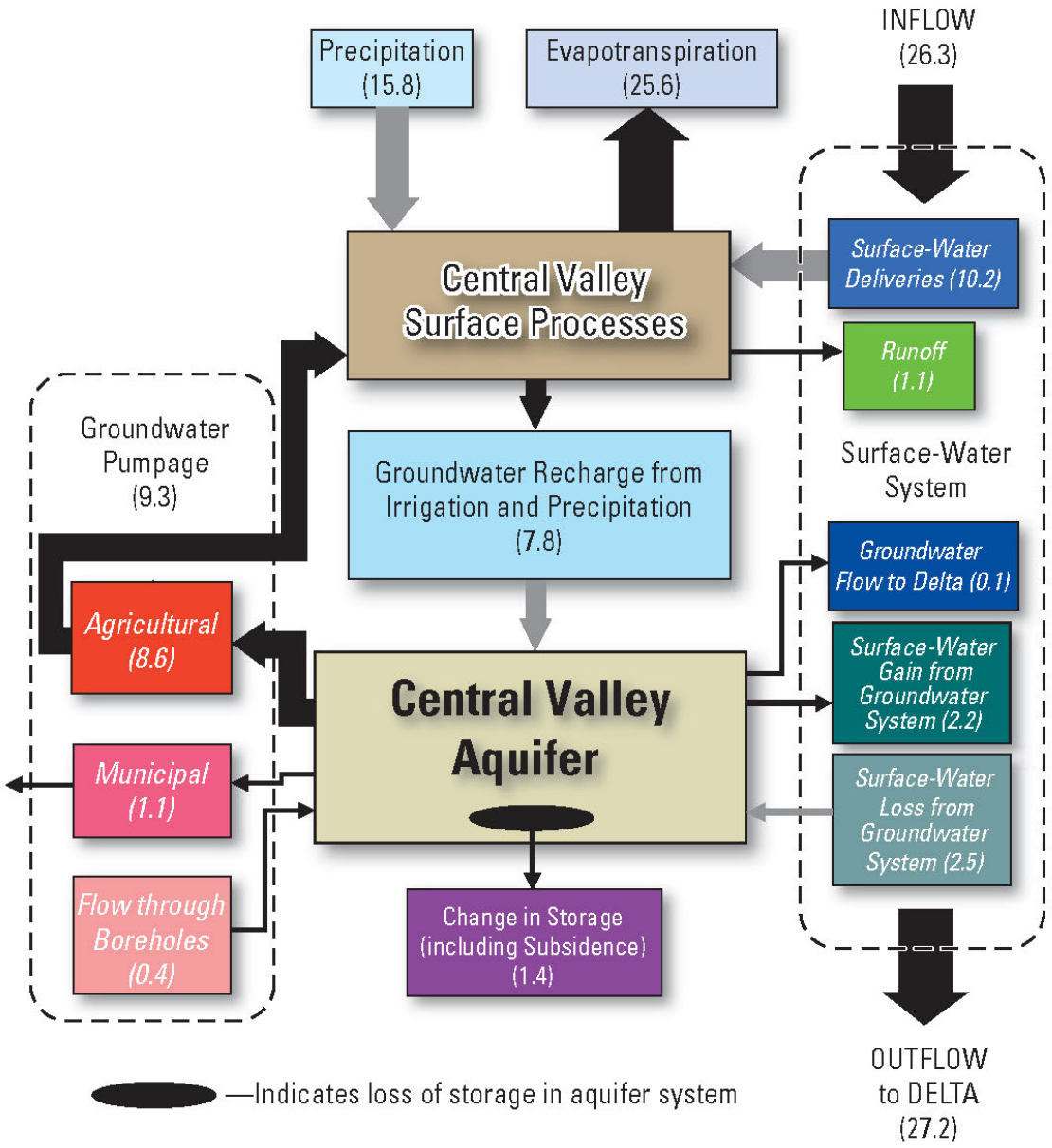


Figure B1. Average water budget for water years 1962–2003. This budget includes the landscape and groundwater components and their linkages. Values in millions of acre-ft/yr. A diagram showing the pre-development water budget is shown in *figure A23*.

Change in Storage Examples

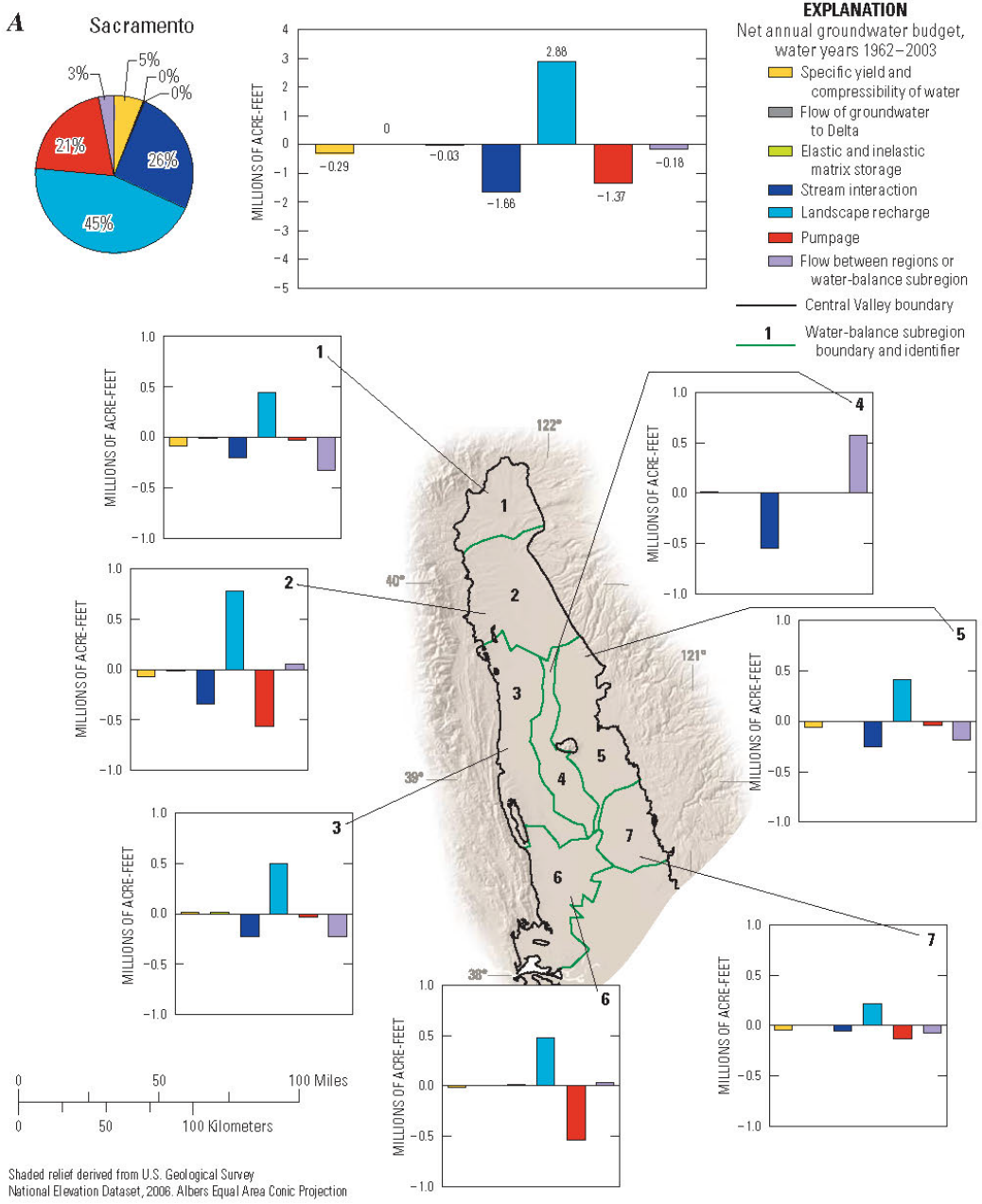


Figure B10. Average annual groundwater budget for the *A*, Sacramento Valley. *B*, Delta and Eastside Streams. *C*, San Joaquin Valley. *D*, Tulare Basin. Schematic bar charts of average annual groundwater budget for the 21 water-balance subregions (WBSs) in the Central Valley also are shown.

Change in Storage Examples

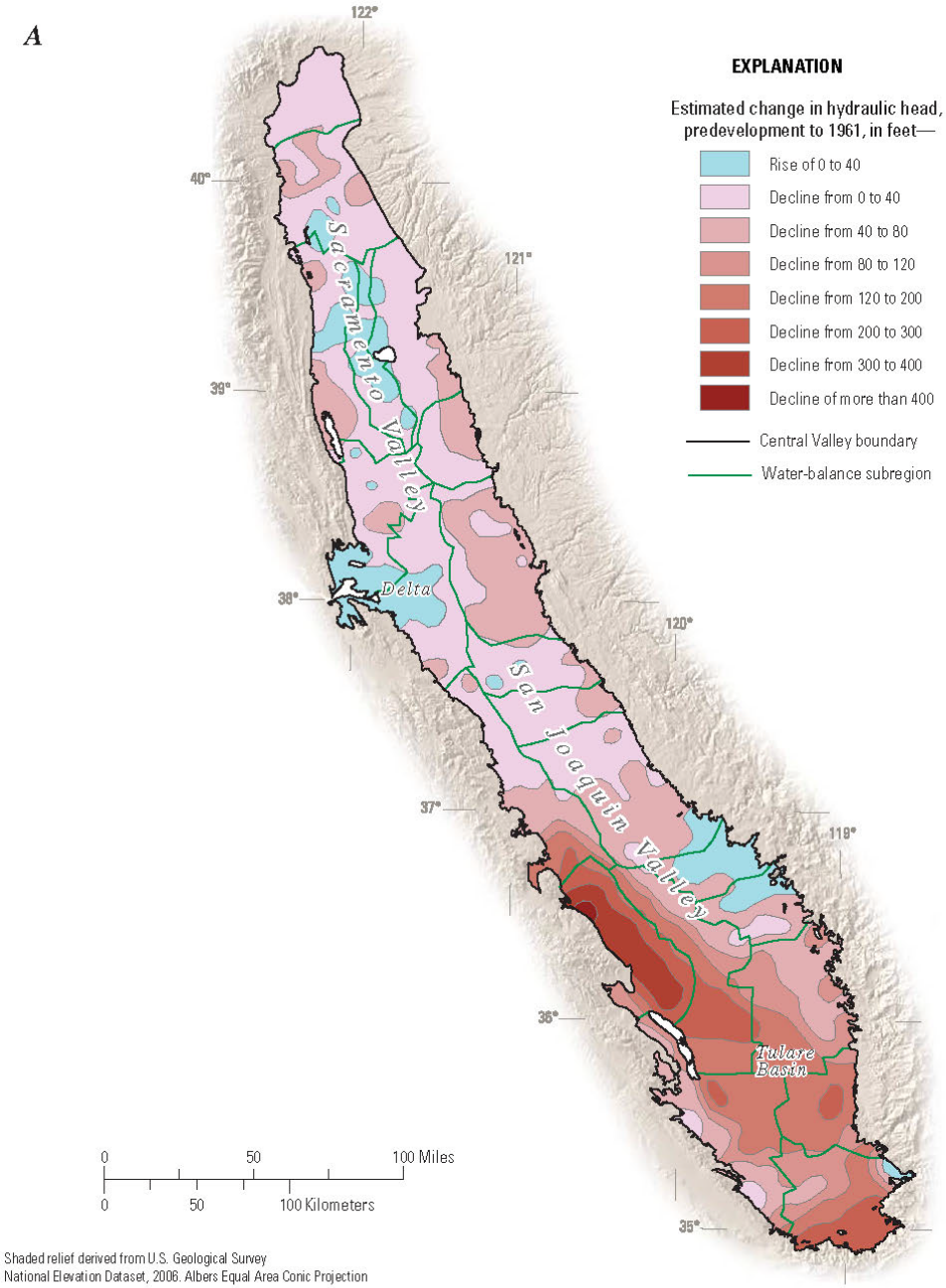


Figure B4. *A*, Estimated change in hydraulic head in upper part of the aquifer system from 1860 to 1961 (modified from Williamson and others, 1989; Bertoldi and others, 1991). *B*, Simulated change in hydraulic head in lower part of the aquifer system from spring 1962 to spring 2003.

Change in Storage Examples

Change in Storage Examples

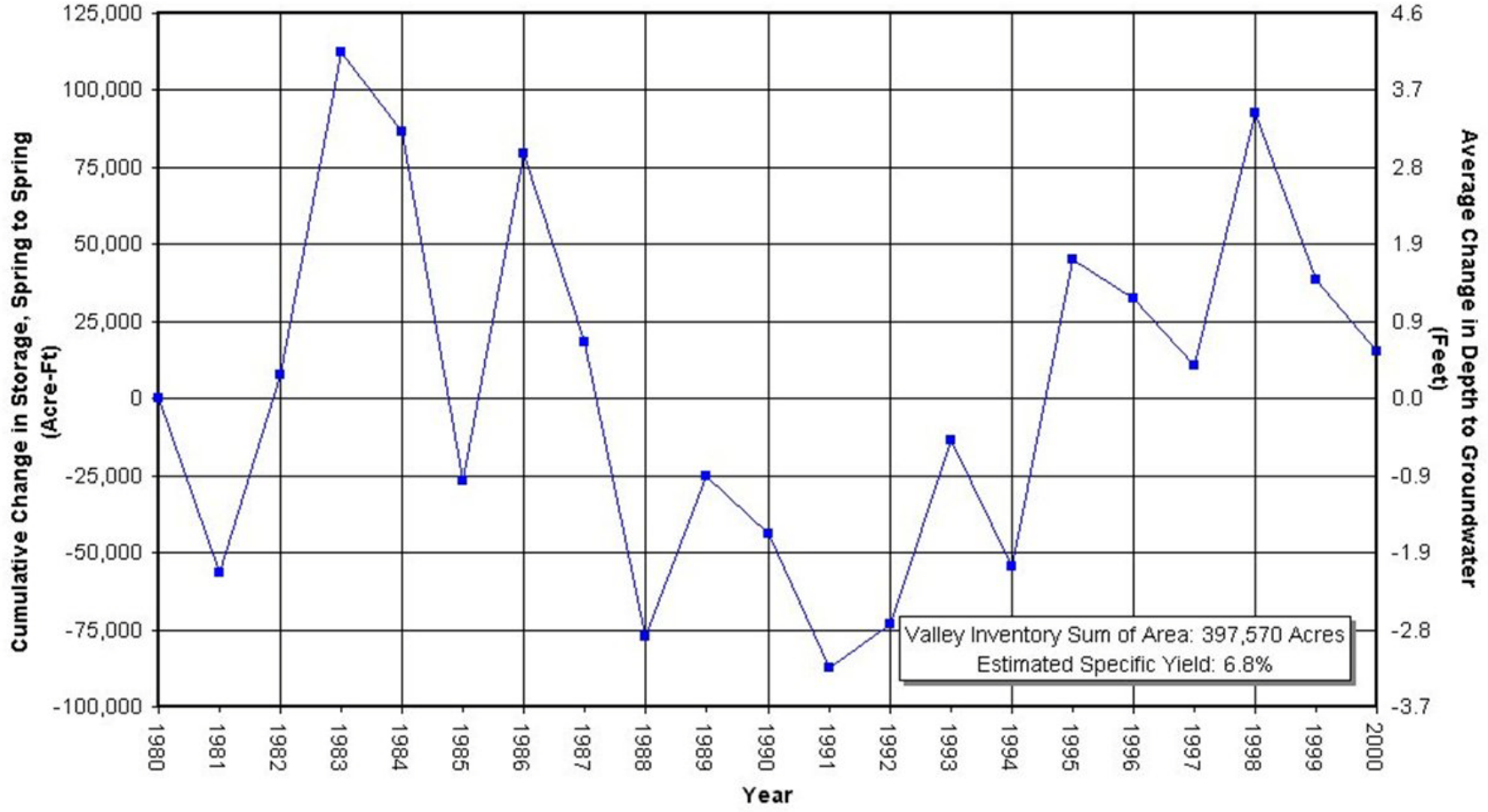


Figure 14. Estimated Cumulative Changes in Spring-to-Spring Storage, Sacramento Valley Portion of Butte County.

Change in Storage Examples

INVENTORY UNIT	SUB-INVENTORY UNIT	Surface Area (acres)	Specific Yield	GW Extraction * Normal Year (acre/feet)	GW Extraction * Drought Year (acre/feet)	Average Change in GW Elevations (feet)	
						Normal Year	Drought Year
Vina	Inventory Unit Total/Average:	74,935	7.1%	124,100	148,390	-23	-28
West Butte	Durham Dayton	39,783	6.6%	84,470	107,470	-32	-41
	M&T	8,184	6.6%	5,180	7,040	-10	-13
	Llano Seco	18,378	6.6%	1,160	1,590	-1	-1
	Angel Slough	5,346	6.6%	9,550	12,230	-27	-34
	Western Canal (33%)	14,767	6.6%	1,640	9,720	-2	-10
	Inventory Unit Total/Average:	86,458	6.6%	102,000	138,050	-18	-24
East Butte	Pentz	1,885	6.3%	70	70	-1	-1
	Esquon	11,604	6.3%	12,000	21,900	-17	-30
	Cherokee	14,704	6.3%	21,370	24,420	-23	-27
	Western Canal (67%)	29,980	6.3%	3,810	31,170	-2	-17
	Richvale	39,401	6.3%	-5,730	25,640	2	-10
	Thermalito	25,468	6.3%	18,350	20,070	-12	-13
	Biggs-west Gridley	33,971	6.3%	2,510	16,560	-1	-8
	Butte	21,370	6.3%	18,940	27,430	-14	-21
	Butte Sink	10,273	6.3%	170	1,060	0	-2
	Inventory Unit Total/Average:	188,656	6.3%	71,490	168,320	-6	-14
North Yuba	North Yuba	47,521	8.8%	44,100	55,040	-11	-13
Split Areas	California Water Service	15,425	6.3%	18,180	20,570	-19	-21
	Western Canal	44,747	6.5%	5,450	40,890	-2	-14
Valley Area	**Valley Total/Average:**	**397,570**	6.8%	**341,690**	**509,800**	-13	-19

*Seasonal Groundwater Extraction equals: summer agricultural extraction, plus 70% of annual M&I extraction, minus 30% of annual deep percolation.

TABLE 10. ESTIMATED SEASONAL CHANGES IN THE VOLUME OF GROUNDWATER IN STORAGE AND THE ASSOCIATED CHANGES IN GROUNDWATER ELEVATIONS FOR 1997 NORMAL AND DROUGHT YEAR SCENARIOS